

LITHIUM-AQUEOUS BATTERY

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Due to the exceptionally high energy density Lithium-water batteries have very high storage efficiency. Being able to store more energy is important to many industries including electronics and electric vehicles. This is the reason that much research is being done to optimize and explore new techniques of development for these batteries.

The Li-water battery has been designed in this project to test water and other aqueous solutions as the cathode. The lithium in a non-aqueous electrolyte acts as the anode of the battery. The solid electrolyte used in the lithium water batteries is a glass/ceramic (LISICON). The solid electrolyte acts as a separator allowing the Lithium ions to pass through it without allowing the liquid cathode come into direct contact the Lithium.

This paper describes the creation and testing of a Lithium-water battery which uses water and Copper (II) Nitrate as the cathode electrolyte. The purpose of this paper is to compare and contrast the difference in voltage of distilled water and distilled water with Copper (II) Nitrate additives as cathode. When the tests were conducted, it was found that Copper (II) Nitrate does in fact increase the voltage of the Lithium-water batteries significantly when compared to the distilled water. These results were expected because of Copper (II) Nitrate's strong electrolyte properties.

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